LESSON 6-1: Modeling Equations on the Sentences Mat

Objective

To model equations on the Sentences Mat

Vocabulary

Sentences Mat, equation, zero pair

Additional Materials

Lesson 6-1 Worksheet (on CD-ROM)

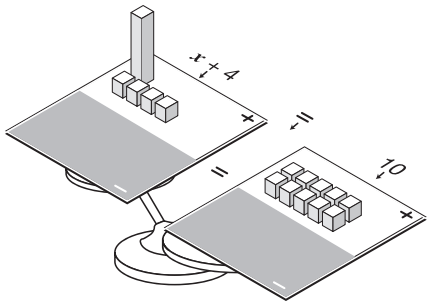
Introducing the Lesson

Write the equation $x + 4 = 10$ on the board. Ask:

- How can we use Algeblocks to show this equation? (Accept all suggestions.)

If necessary, review the use of the yellow and orange rectangular blocks to show the variables x and y. Point out that the expression $x + 4$ can be shown on the Basic Mat; however, a new mat is needed to show the two parts, or sides, of an equation.

Have students examine the Sentences Mat. Discuss how the format of the mat relates to an equation. They both have two sides, and they both have an equal sign in the middle.



Provide students with x blocks and unit blocks. Have them experiment with placing various groups of blocks on the mat.

Teaching the Lesson

Have students model the example equation by following the steps at the top of the page. Remind them that placing a block on a white positive section gives that block a positive value. Placing a block on a gray negative section gives the block a negative value.

Check that students are clear about the relationship between an equation and the Sentences Mat. Ask:

- What is the left side of the example equation? [$x - 3$]
- Where do you model this expression? [on the left side of the Sentences Mat]
- What is on the right side of the equation? [$^{-}2 + 7$]
- Where do you model this? [on the right side of the mat]

Use the **Try It** questions as a check on understanding. Have students work in pairs to complete the lesson. Point out that they should not yet solve these equations. They are only to model them. Solving will occur in later lessons.

Journal Entry

Explain how an equation is like a balance scale. Include drawings if you wish.

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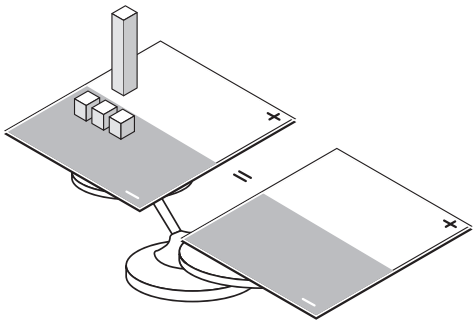
An equation is a little like a balance scale. The two sides of an equation must equal the same number. The scale on the Sentences Mat shows this equality.

Example: Model the equation $x - 3 = -2 + 7$ on the Sentences Mat.

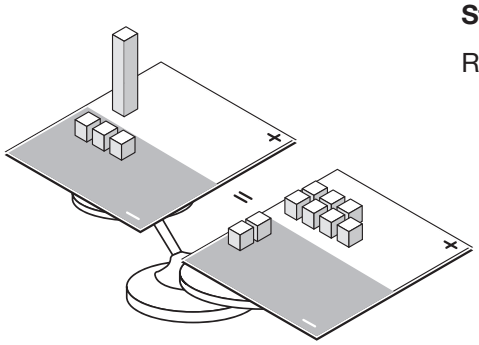
Step 1.

Model the left side of the equation on the left side of the Sentences Mat.



Step 2.

Model the right side of the equation on the right side of the mat.



Step 3.

Read the mat.

$x - 3 = -2 + 7$

Step 4.

Record your model.

Try It

1. What Algeblocks are used in Step 1? the x block and three unit blocks

2. What do the two sections of the Sentences Mat show? the two sides of an equation

3. The drawing in Step 2 can be simplified by removing some zero pairs.

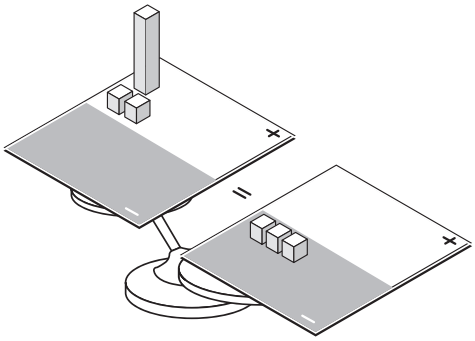
Explain how to simplify the equation. Remove two unit blocks from the top and two unit blocks from the bottom.

The new equation is $x - 3 = 5$.

Practice

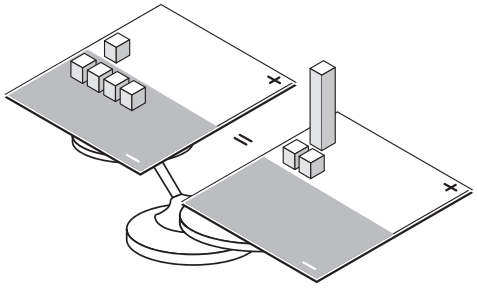
Use Algeblocks to make each model. Then write the equation shown.

4.



$x + 2 = -3$

5.



$1 - 4 = x + 2$

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